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Kamen et al.(10) **Pub. No.: US 2019/0376468 A1**(43) **Pub. Date: Dec. 12, 2019**(54) **STIRLING CYCLE MACHINE**(71) Applicant: **DEKA Products Limited Partnership,**
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(57)

ABSTRACT

A Stirling cycle machine with a liquid fuel/gaseous fuel burner. The burner may include a preheater to capture the thermal energy of the exhaust. The burner directs the preheated air to each burner head, where it enters a prechamber. Each burner head includes a fuel nozzle that directs liquid or gaseous fuel into the prechamber. The prechamber is fluidically connected to a combustion chamber via a prechamber nozzle that has a smaller opening than the prechamber. The burner head ignites the fuel air mixture in the prechamber with an ignitor located above or within the prechamber. The flame is initially lit as a diffusion flame in the prechamber. The flame is pushed out of the prechamber into the combustion chamber by an increased air flow rate. The liquid fuel from the nozzle now evaporates in the prechamber and forms a prevaporized flame in the combustion chamber.

